

Figure 1A

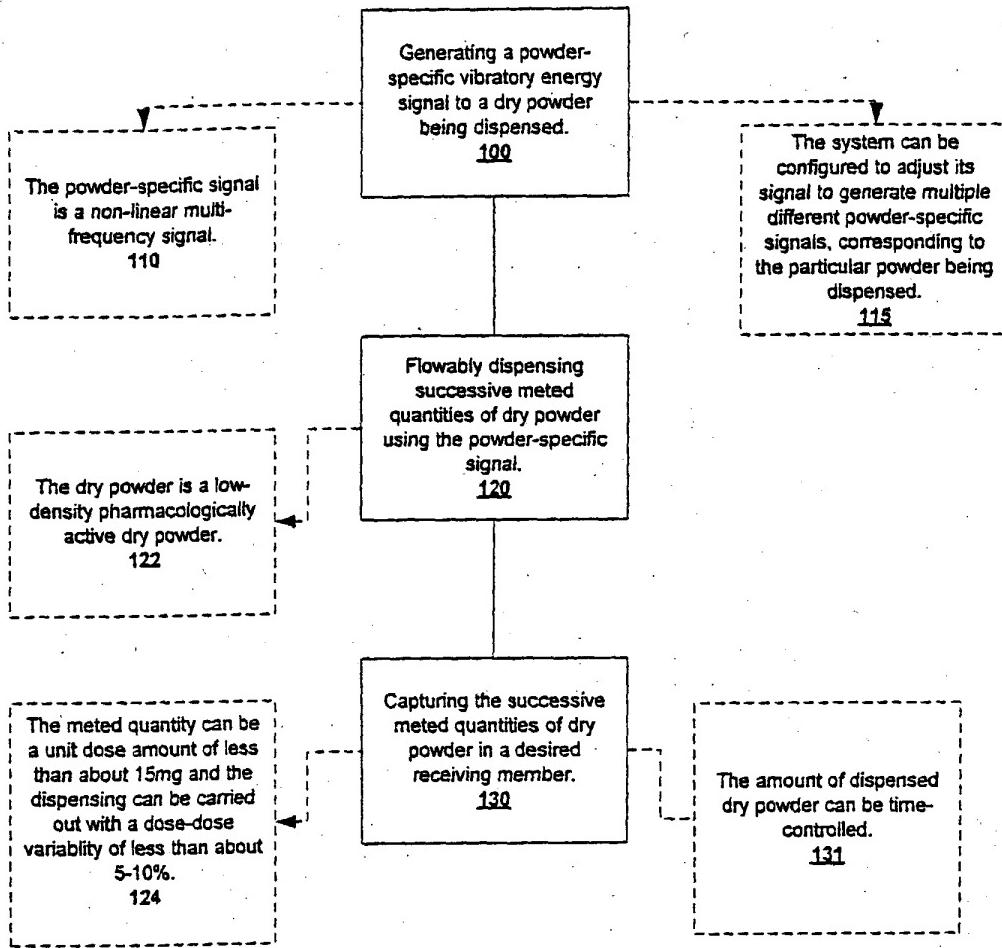


FIGURE 1B

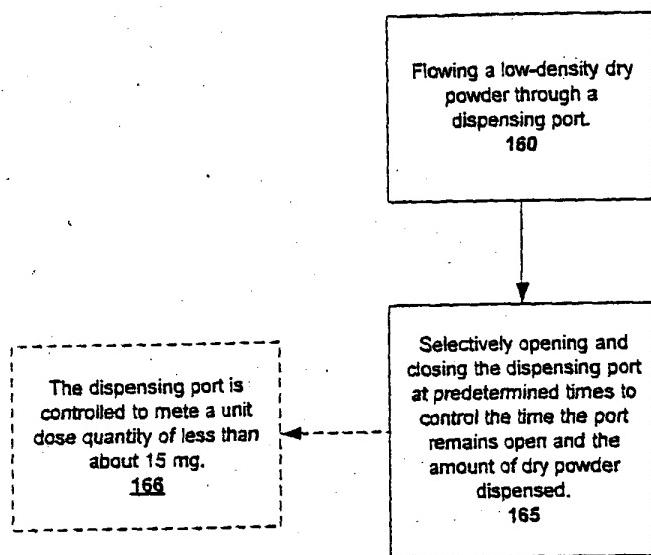
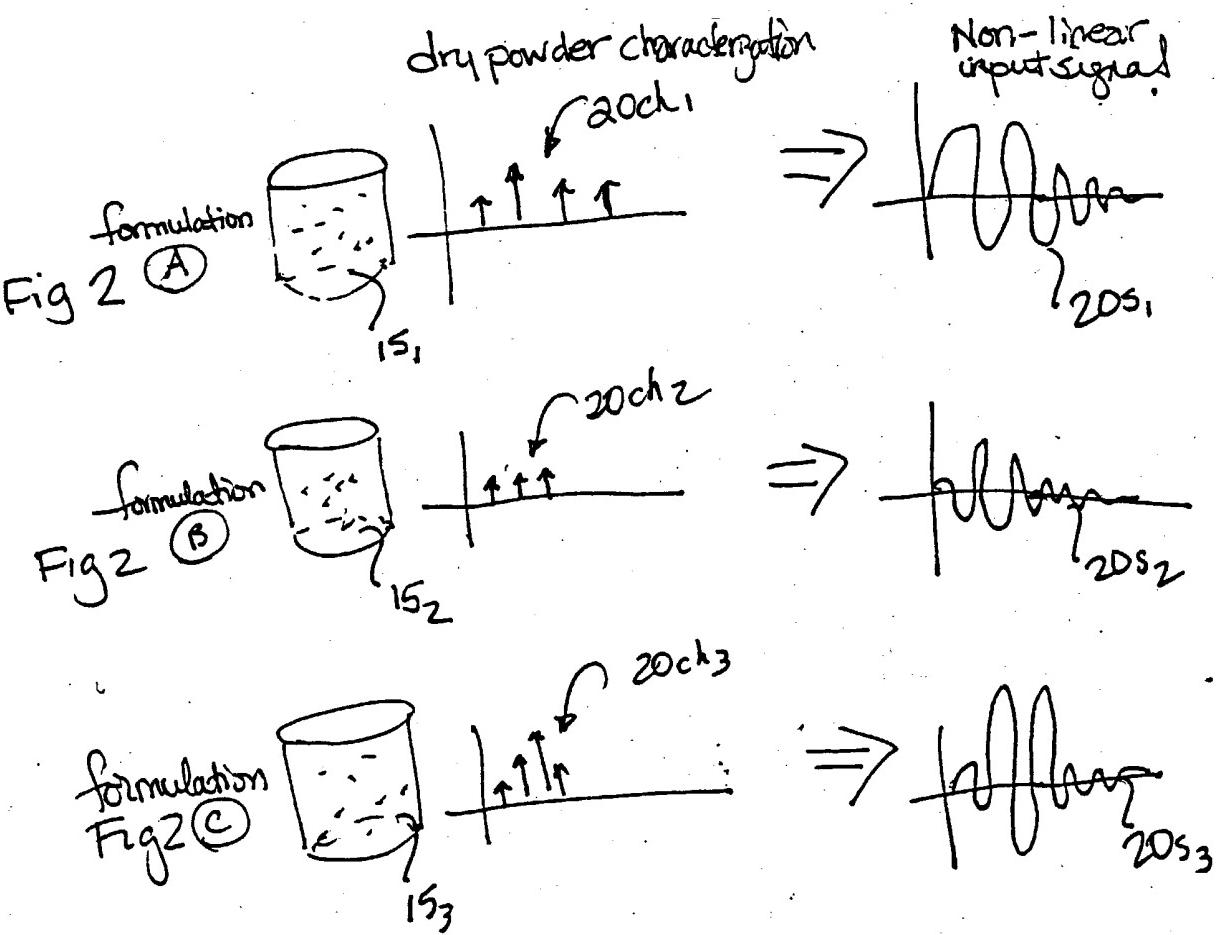


FIGURE 1C



SIGNAL GENERATION ALGORITHMS

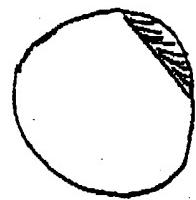


Fig. 3A

Histogram between
avalanches for
powders in
rotating drum

Fig. 3B



Record top six most
observed frequencies,
typically representing
75% of distribution

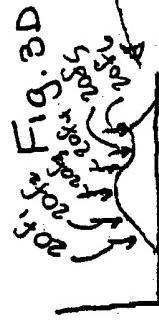


Fig. 3D

convert time
to frequency
space

plot distribution
at frequencies



Fig. 3C

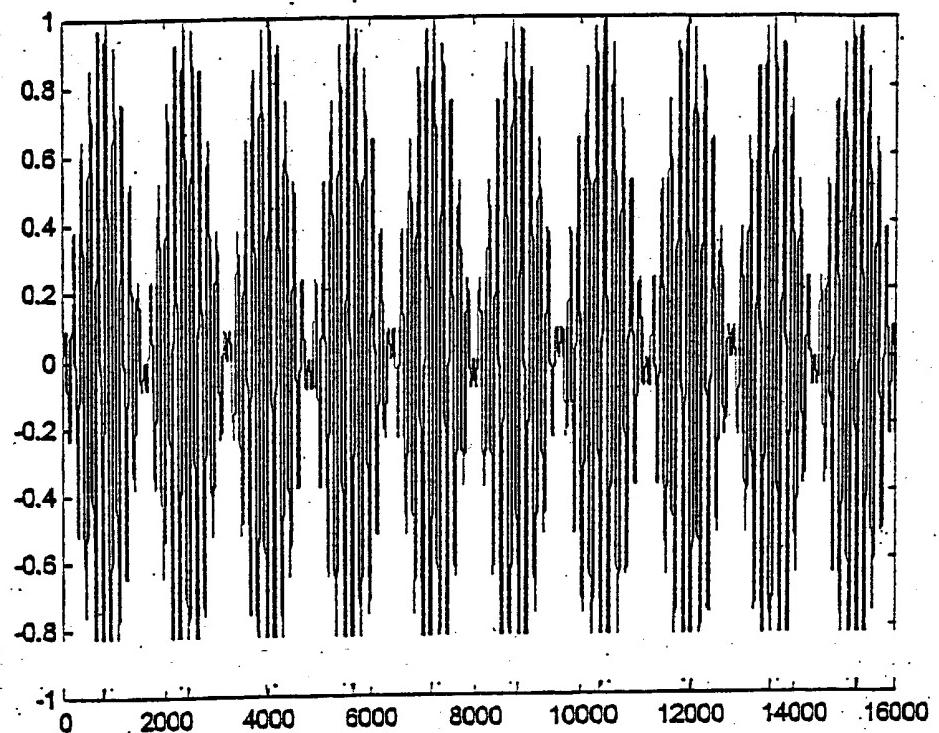
$\sqrt{20f}$



Fig. 3E

Superimpose these six
frequencies to construct
a single superposition
signal (can include
step of adjusting relative
amplitudes)

FIGURE 14



6

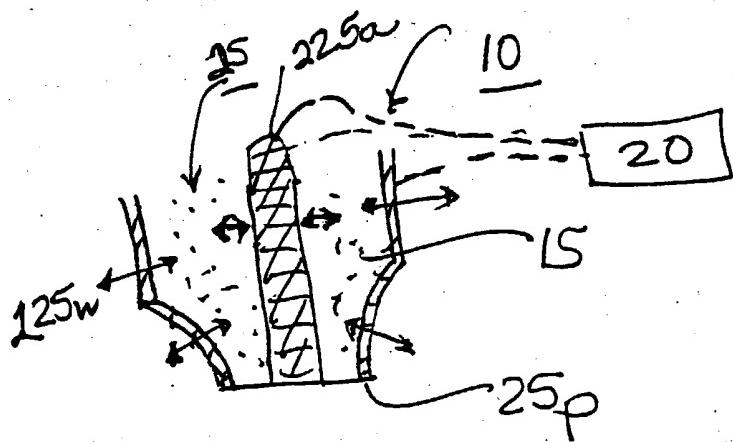


Fig. 5A

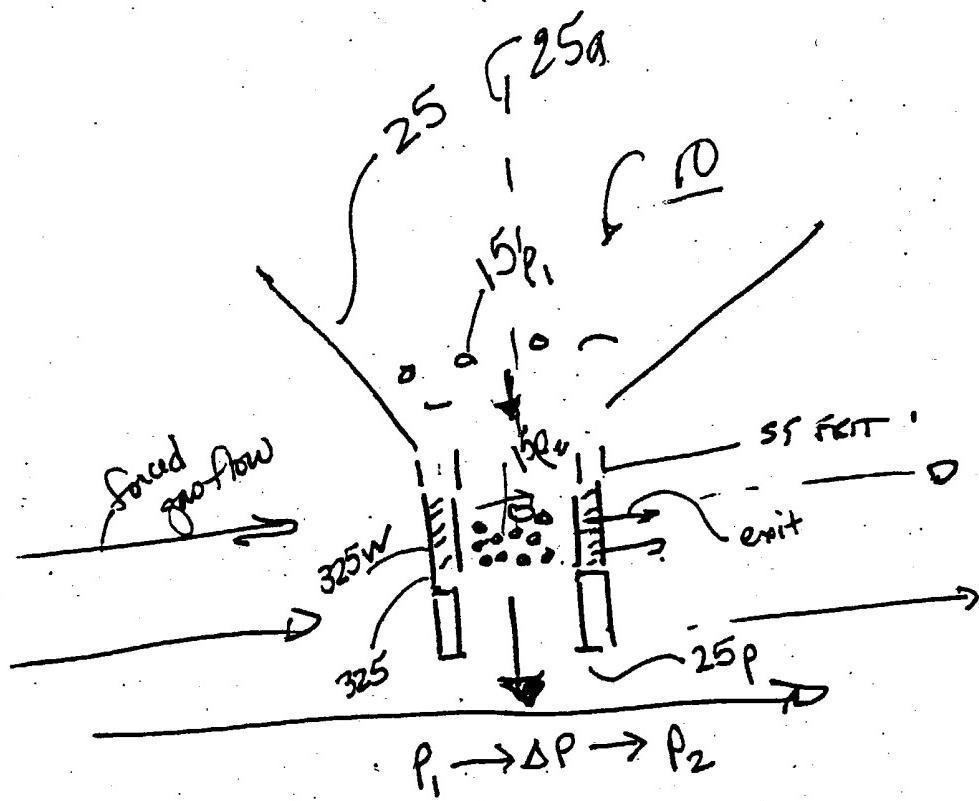


Fig. 5B

NON-LINEAR VIBRATION / CENTRIFUGATION PRINCIPLE IN Powder FILLING.

Basic Principle:

COMBINE NON-LINEAR FUNCTION
WITH CENTRIFUGAL MOTION

THIS CAN BE ADAPTED
TO LOCAL NON-LINEAR
VIBRATION.

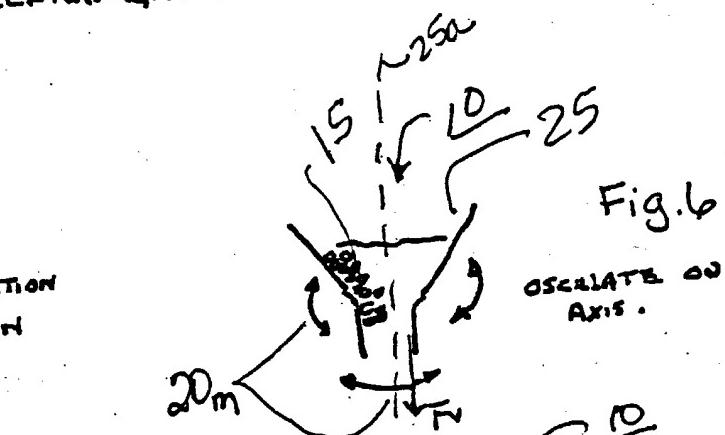


Fig. 6

OSCILLATE ω
AXIS.

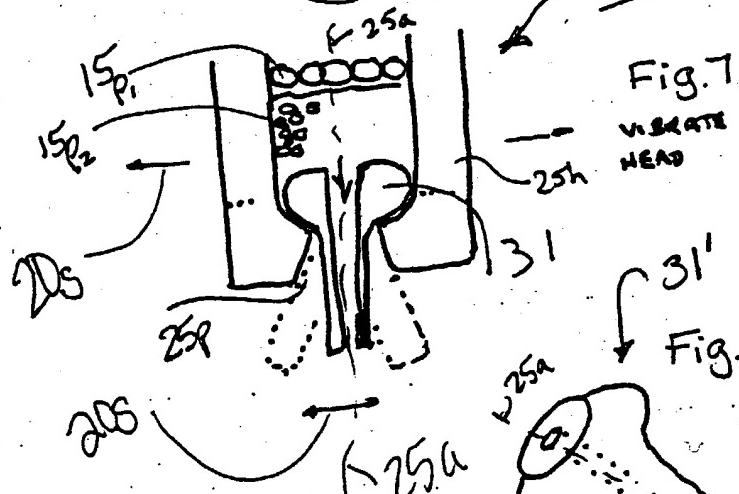


Fig. 7

VIBRATE
HEAD

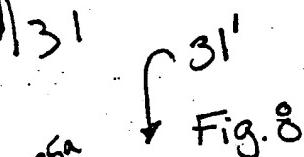


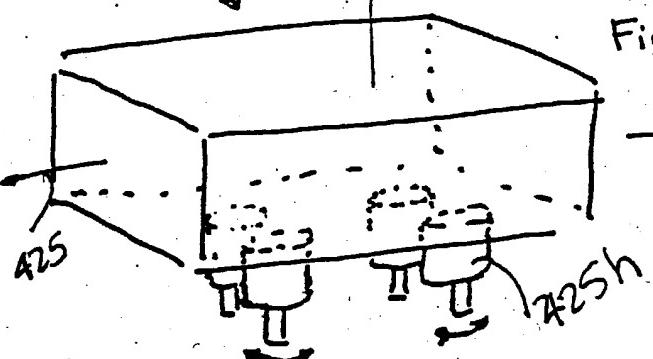
Fig. 8

DIAGRAM OF
OSCILLATING
INSERT.



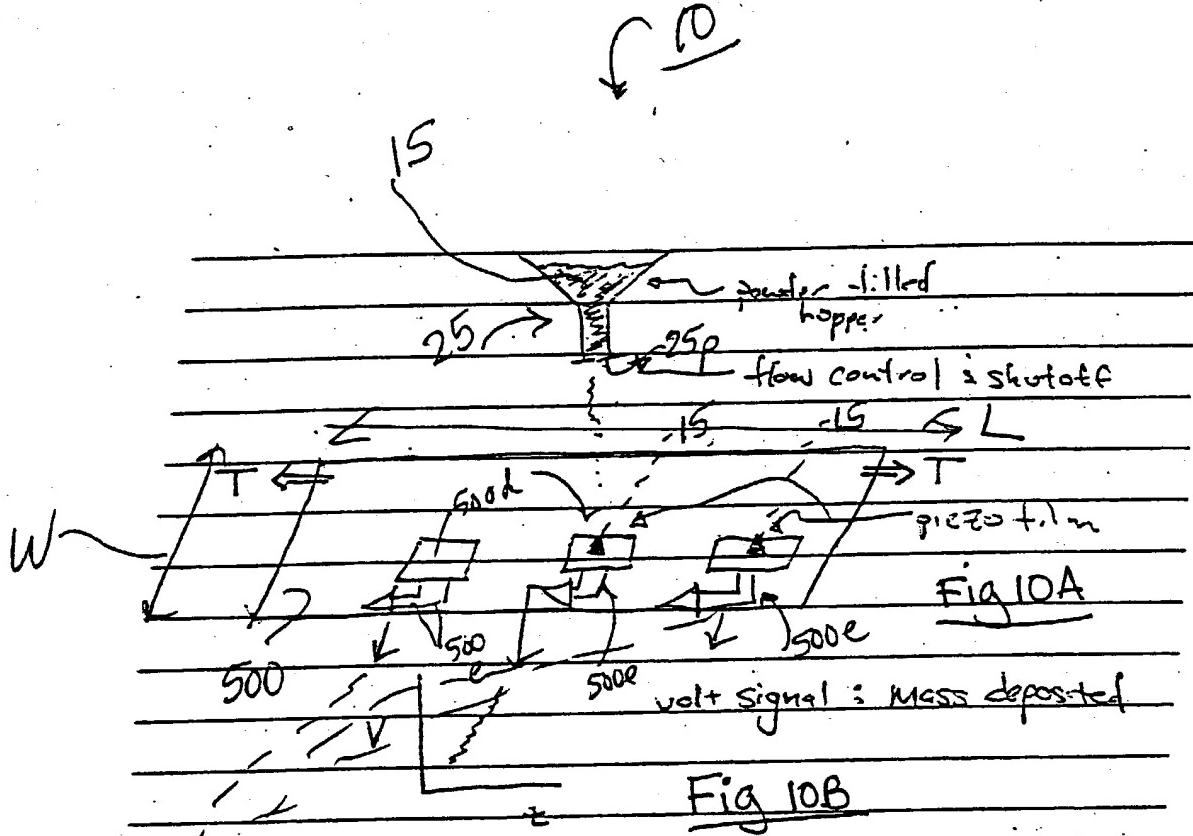
Fig. 9

VIBRATION CAN BE
APPLIED TO A
RACK OF HEADS FILLING
FROM SINGLE HOPPER.



VIBRATE
RACK.
425 Hz

RADIUS (OR EXTREMES) OF MOTION CAN BE VERY SMALL. AT HIGH FREQUENCY
THE ANGULAR VELOCITY WILL BE SUFFICIENT TO GIVE DIRECTIONAL
ACCELERATION TO PARTICLES.



510
Detection
System

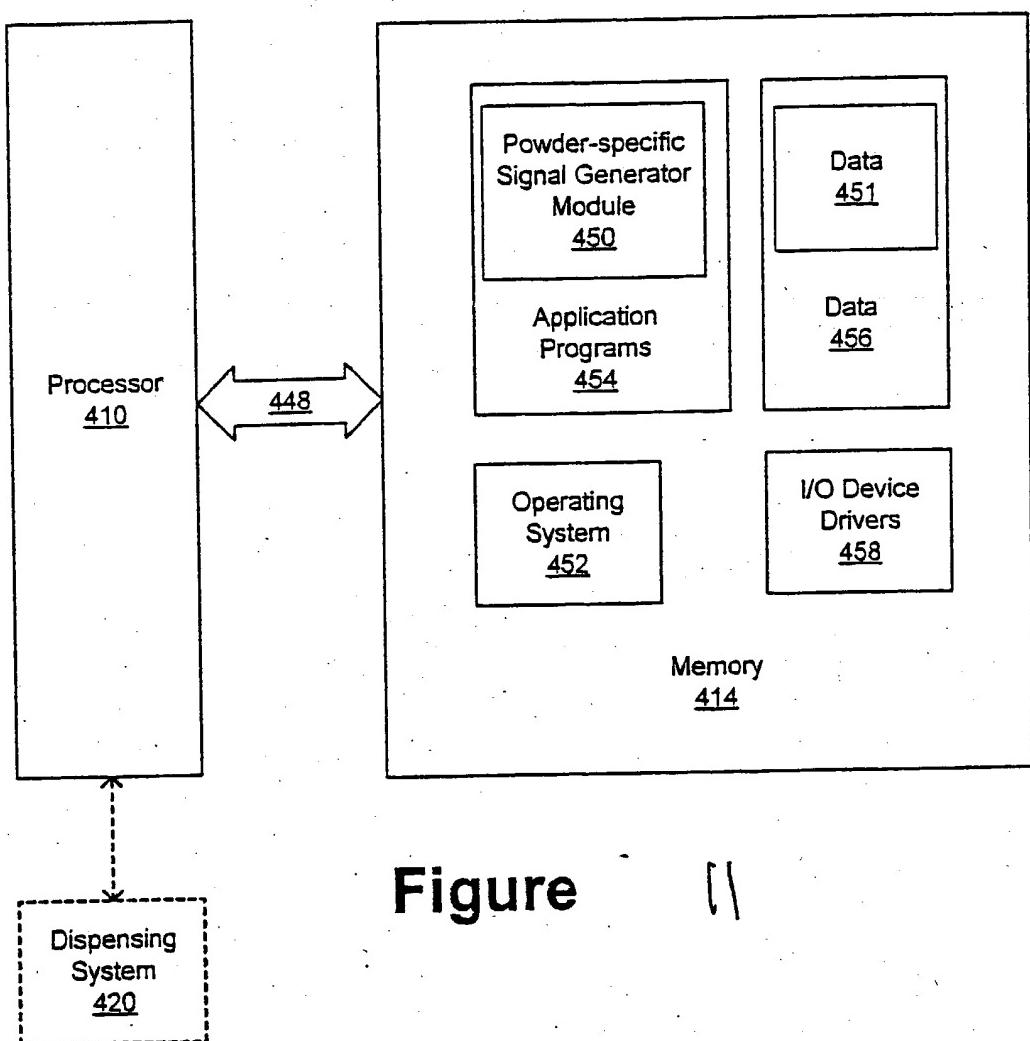


Figure 11

FIGURE 12

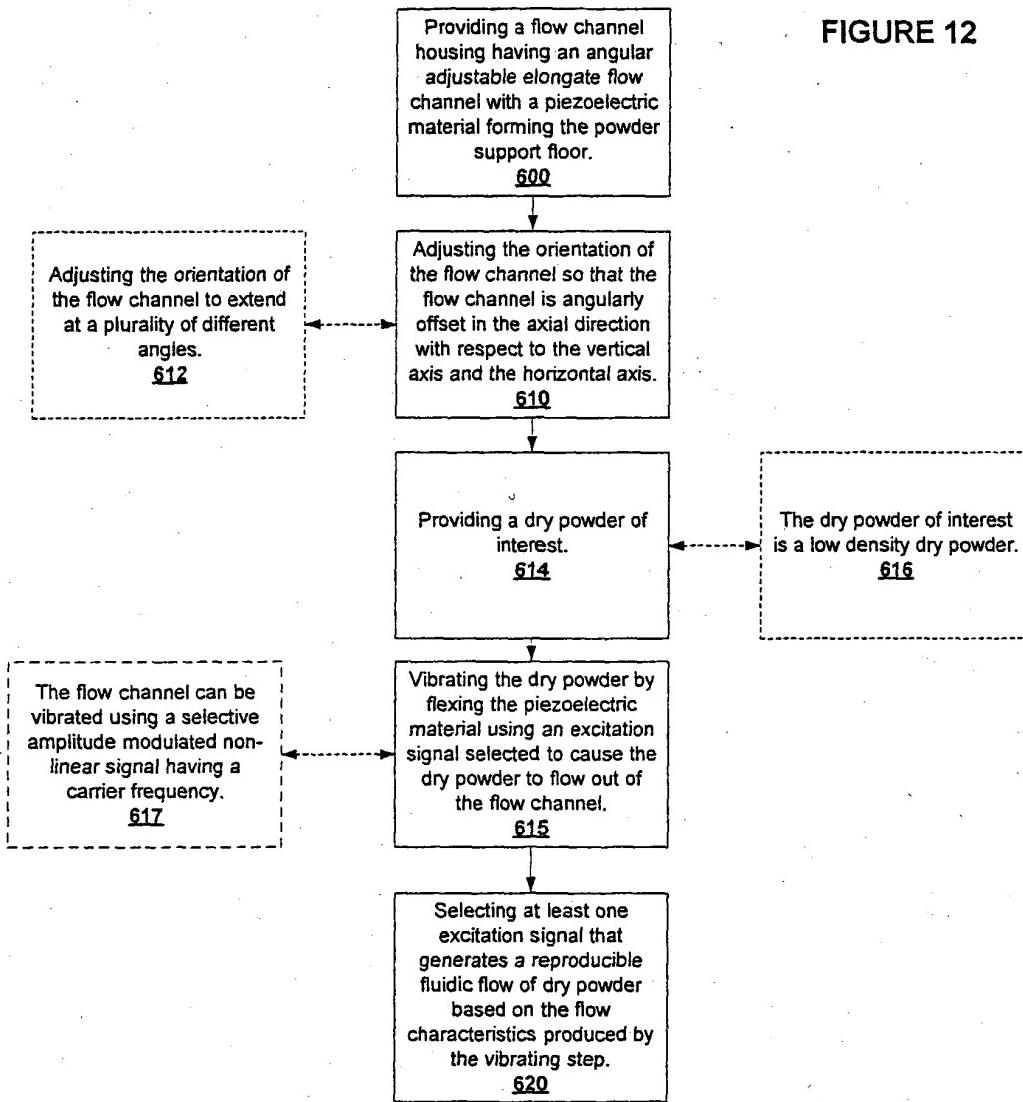
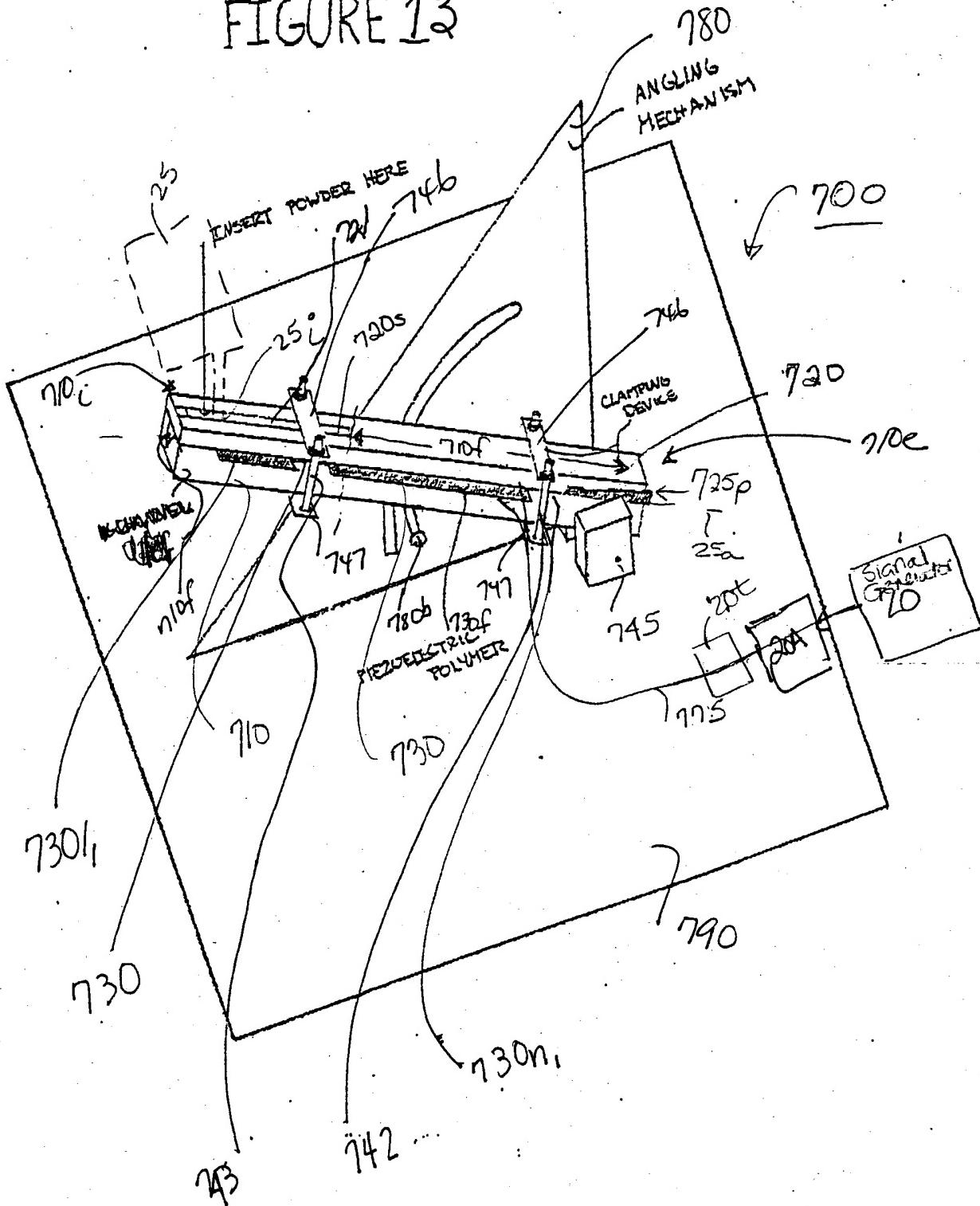


FIGURE 13



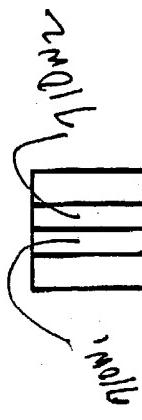
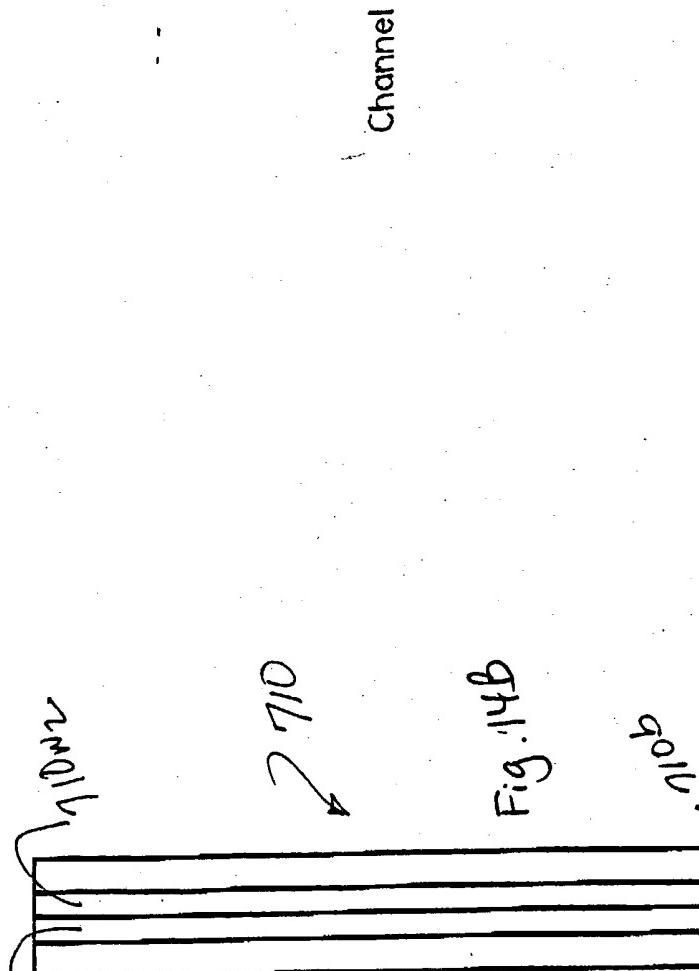


Fig. 14B



Channel



A hand-drawn diagram showing a large rectangle divided into several horizontal sections. The top section is labeled "fig 14A". Below it, the left side has a label "fig 14B" and the right side has a label "fig 14C". On the far left, there is a vertical label "11051" and a horizontal label "11052". On the far right, there is a vertical label "11053" and a horizontal label "11054". Above the top section, there is a curved arrow pointing downwards with the label "110". To the right of the top section, there is another curved arrow pointing downwards with the label "110".

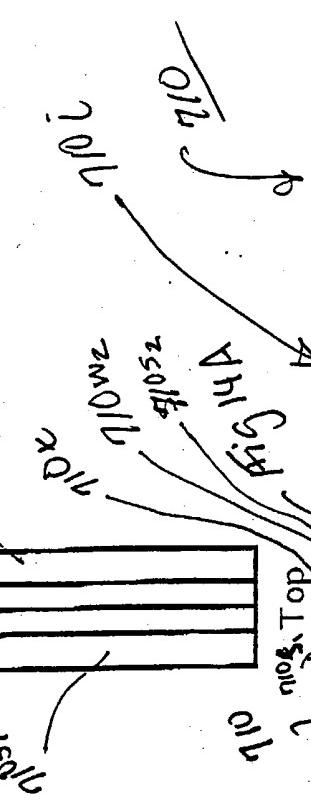
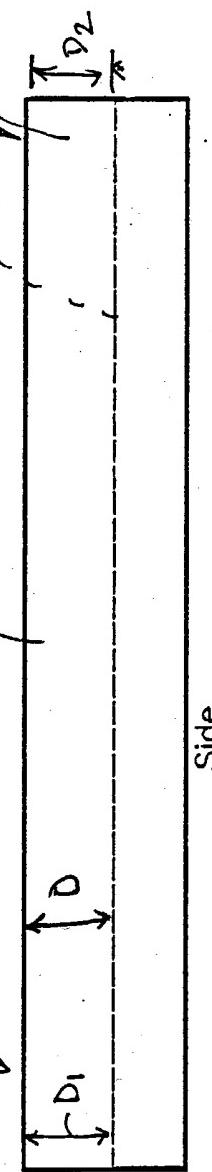
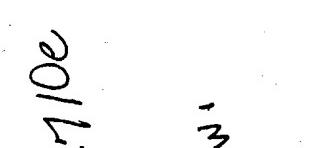


Fig 14



NOT TO SCALE / *Now!*



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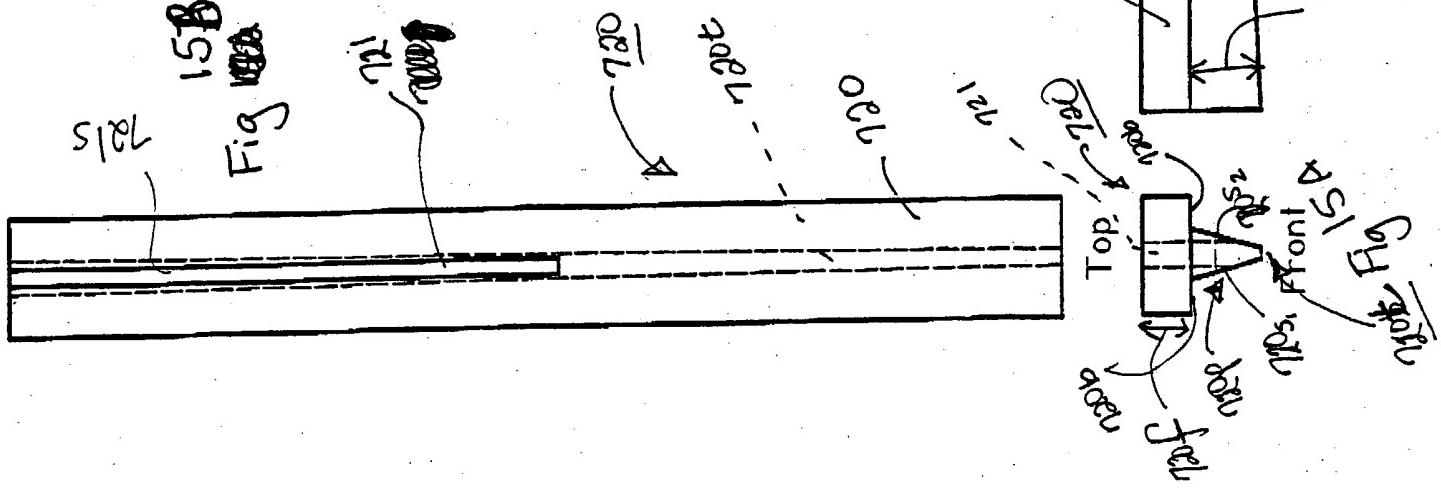


Fig 15B

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2

12

1

1

52

cont'd

15

16

Side

708

Orv J. Joel

Fig 15c

NOT TO SCALE

150

Fig 15D

Fig 15D

Fig 15D

Part 3: Piezoelectric Polymer
NOT TO SCALE

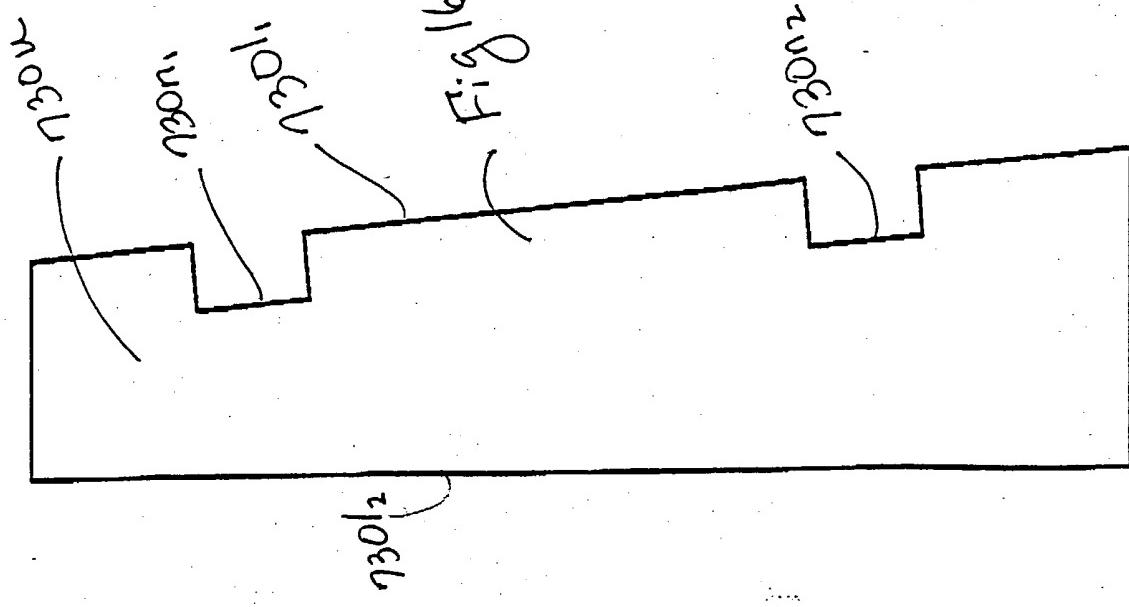


Fig 16A

NOT TO SCALE

$146,041$



Fig 16B

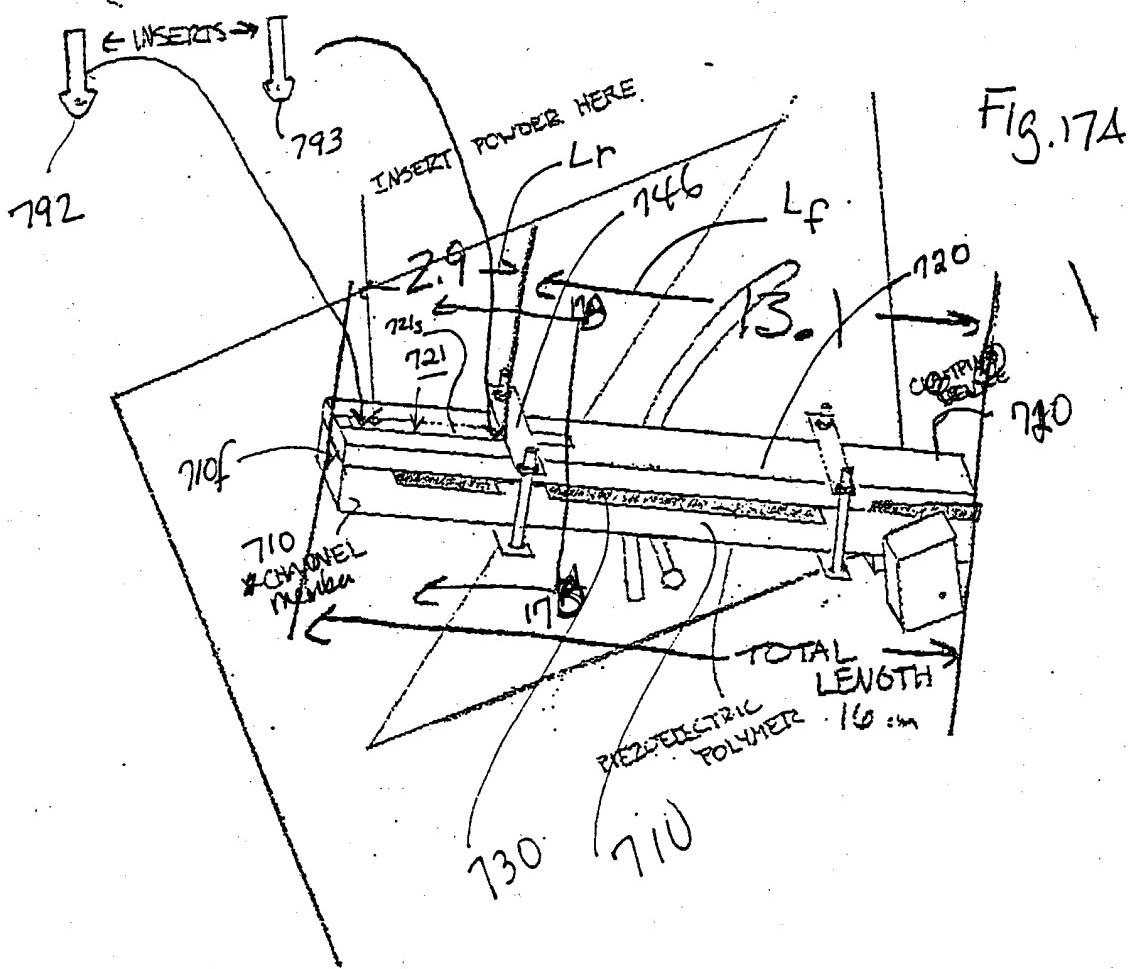


Fig. 17B

